



(51) International Patent Classification:
B24B 5/00 (2006.01) **B24B 29/00** (2006.01)

(21) International Application Number:
PCT/US2008/078610

(22) International Filing Date:
2 October 2008 (02.10.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/041,422 1 April 2008 (01.04.2008) US

(71) Applicant (for all designated States except US):
INNOPAD, INC. [US/US]; 6 Centennial Drive, Peabody,
Massachusetts 01960 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LEFEVRE, Paul**
[FR/US]; 8 High Ridge Road, Topsfield, Massachusetts
01983 (US). **WELLS, David Adam** [US/US]; 4 Melba
Drive, Hudson, New Hampshire 03051 (US). **JIN, Marc**
C. [US/US]; 1 Gloucester Street, Apt. 5, Boston, Mas-
sachusetts 02115 (US). **HSU, Oscar K.** [US/US]; 255
North Road, Chelmsford, Massachusetts 01824 (US).
ALDEBORGH, John Erik [US/US]; 56 Boren Lane,
Boxford, Massachusetts 01921 (US).

(74) Agents: **GROSSMAN, Steven J.** et al.; Grossman, Tuck-
er, Perreault & Pflieger, PLLC, 55 South Commercial
Street, Manchester, New Hampshire 03101 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,
CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ,
EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR,
KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO,
NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG,
SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA,
UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ,
TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI
(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: POLISHING PAD WITH CONTROLLED VOID FORMATION

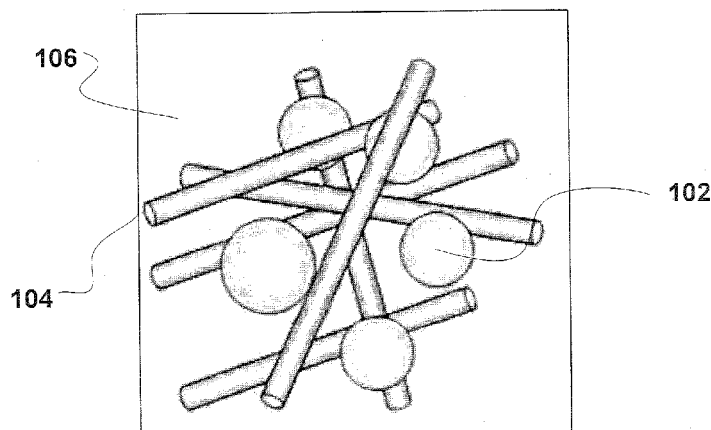


FIG. 1

(57) Abstract: A chemical-mechanical planarization polishing pad is provided comprising a network of elements dispersed within a polymer, a plurality of voids formed in the pad and at least a portion of said network of elements is connected to at least a portion of the voids. A method of forming the pad is also disclosed, which comprises providing a composition, the composition comprising a network of elements and at least one of a polymer or a reactive prepolymer, introducing a gas to the composition and using the gas to produce a plurality of voids in the composition. A method of forming voids is also disclosed, which relies upon the application of a force to the network of elements within the polymer or reactive polymer, followed by removal of the force and void formation.